PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference BPULBB090BWO	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/BE2004/000180	International filing date *(day/month/year)* 21.12.2004	Priority date *(day/month/year)* 24.12.2003
International Patent Classification (IPC) or national classification and IPC A61M5/172		
Applicant UNIVERSITE LIBRE DE BRUXELLES et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 3 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
24.10.2005	30.01.2006
Name and mailing address of the international preliminary examining authority: European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized Officer Nielsen, M Telephone No. +49 30 25901-554

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/BE2004/000180

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

   Description, Pages

   1-30 as originally filed

   Claims, Numbers

   1-15 received on 05.11.2005 with letter of 02.11.2005

   Drawings, Sheets

   1/5-5/5 as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/BE2004/000180

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-15
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

In light of the documents cited in the international search report, it is considered that the invention as claimed in the independent claim meets the criteria mentioned in Article 33 (1) PCT, i.e. it appears to be novel, to involve an inventive step and to be industrially applicable.

Prior art: See paragraphs 0015 and 0016.

Object: See paragraphs 0005 to 0007.

Solution: See the characterizing features of claim 1. In particular the feature "session controller arranged to carry out the modeling of anesthesia procedures" is regarded an inventive key-feature of the invention. See also page 8, lines 18 to 22 for advantages obtained by the proposed solution.

None of the cited documents hint to said solution in order to achieve said object.

Remark: Claim 1 contains a reference to "said sensors". Sensors are, however, only defined in dependent claim 2.

CLAIMS

1. A system for computer-aided intravenous delivery of anesthetics and/or other drugs to a patient, wherein said system comprises:

an Infusion Controller arranged for delivering an amount of drug(s) to a patient;

a Communication Controller connected with infusion pumps and/or monitors;

a Graphic User Interface to display different views of the system and to accept user input;

a first interface to link the Infusion Controller to views displayed by said Graphical User Interface;

characterised in that said system further comprises

a Session Controller arranged to carry out the modeling of anesthesia procedures and arranged to run a first procedure and to dynamically adapt said first procedure and/or select and run a second procedure based upon one or more of said sensors' output and/or observation from a physician;

a second interface linking said Session Controller to said views displayed by said Graphical User Interface;

a Processor or Infusion Session Manager integrating the Graphic User Interface, the Infusion Controller, the Communication Controller and the Session Controller and arranged for steering drug delivery, and

wherein the system also contains a set of configurable written procedures to steer intravenous anesthetic drug delivery and/or other drug delivery, whereby said procedures have been adapted to the type of surgical action and/or therapy, adapted to the

patient's physical condition, and adapted to the type of drugs, tools and theoretical models used.

2. The system according to claim 1 further comprising a DataLogger Controller with one or more sensors adapted so as to be coupled to a patient and to generate signals reflecting one or more health conditions or statuses of the patient, whereby a third interface is provided for linking the Datalog Controller to said views by the Graphical user interface, said Datalog Controller further being integrated by said Processor or Infusion Session Manager.

3. The system according to claim 1 or 2, further comprising an Archiving Manager which is in contact with the Infusion Session Manager and is under the control of the same program as the Infusion Session Manager.

4. The system according to claims 1, 2 or 3 wherein the Archiving Manager and the Infusion Session Manager may be independently transportable units.

5. The system according to any of the preceding claims, wherein the person in charge or the user may set the level of assistance desired via a graphical user interface.

6. The system according to any of the preceding claims, wherein only an expert user is allowed to edit and/or make permanent changes to the procedures.

7. The system according to any of the preceding claims, wherein the trigger to launch or change a running procedure comes from an internal state and/or from an externally received command or request.

8. The system according to any of the preceding claims, wherein the procedures contain tasks and/or commands per major event, phase or step in said surgery and/or therapy.

9. The system according to any of the preceding claims, wherein the Infusion Controller is arranged for administering at least one intravenous drug selected from the list consisting of hypnotics, analgesics, amnesics and other drugs.

10. The system according to claim 9, wherein said hypnotic is propofol and/or said analgesic is remifentanil and/or said amnesic is mivacurium.

11. The system according to claim 10, wherein the drug state model for propofol is that of Schnider and the drug state model for remifentanil that of Minto.

12. The system according to claim 9, wherein said other drug may be any drug that is used in cancer therapy, possibly applied in combination with antibiotics.

13. The system according to claim 9, wherein said other drug may be selected from the list consisting of paralyzing agents, vasodepressors and pressor substances.

14. The system according to any of the preceding claims, containing constraints and/or safety measures that dictate that a minimal amount of time has to pass between to subsequent modifications to a procedure.

15. The system according to any of the preceding claims, wherein the reliability of a signal or parameter is determined by the quality of said signal, by its relation with other related signals or parameters and/or by the deviation from a normal value and/or from a safe range.